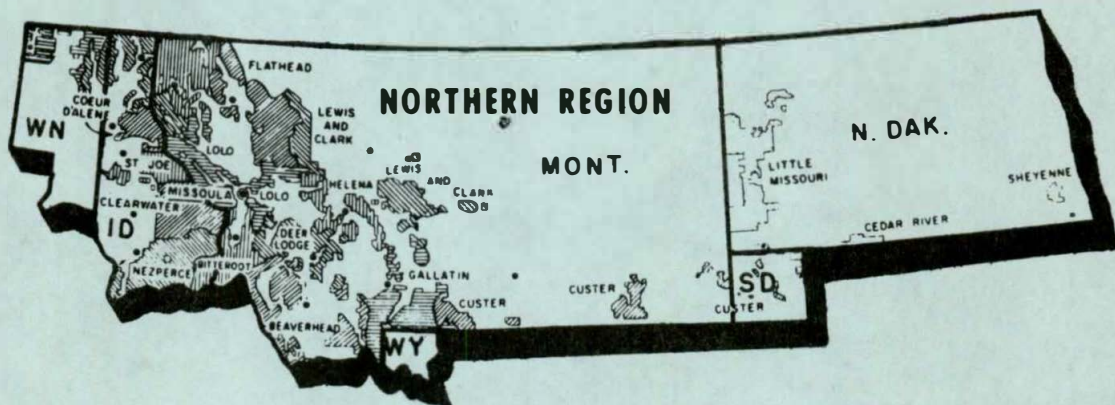


(Not for publication)

November 1970

EVALUATION OF MOUNTAIN PINE BEETLE INFESTATIONS
SUPERIOR DISTRICT, LOLO NATIONAL FOREST, AND
ADJOINING STATE AND PRIVATE LANDS
1970



U. S. DEPARTMENT OF AGRICULTURE - FOREST SERVICE
Division of State and Private Forestry
Northern Region

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By

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ABSTRACT

Epidemic populations of mountain pine beetle, Dendroctonus ponderosae Hopk., continue to cause serious mortality to lodgepole and ponderosa pine stands in vicinity of Four-Mile Flats. Infestation size increased to a gross area of 12,500 acres in 1970. New infestations were spotted during aerial detection surveys in Mill Creek. Additional tree mortality occurred on State of Montana, and private lands and spread to adjacent National Forest land at Mayo Gulch. Eleven additional infested spots ranging from 5 to 50 trees per group were detected from Butler east to Graham Creek on the Cutoff Road. Heavy populations of the pine engraver beetle, Ips pini Say, were interspersed with mountain pine beetle in trees examined.

INTRODUCTION

Infestations of the mountain pine beetle, D. ponderosae, were first detected at Four-Mile Flats in 1964. At that time the infestation consisted of scattered groups of trees on about 600 acres. Tree killing increased annually and by 1969, 2200 acres (see map), containing over 35 infested lodgepole and ponderosa pines per acre were infested on National Forest and State and private lands in this area.

Logging and felling and burning of infested trees, was initiated in 1969 to suppress the outbreak. Because suppressive action was not applied to the entire infestation, several thousand acres containing actively infested trees remained as a reservoir to reinfest residual trees and spread to adjacent, uninfested stands.

METHODS

Data for this report was obtained from annual aerial detection surveys supplemented with ground evaluations. The evaluation consisted of randomly sampling ten currently infested lodgepole pines for brood data. Two 6- by 6- inch bark samples were removed at breast height from the north and south sides of each tree, to count mountain pine beetle brood density, attack density, and prevalence of natural enemies. Counts were made of 1969 and 1970 beetle-killed trees to obtain a ratio of increase.

One-half square foot plastic screen cages, with a vial attached, were stapled to 40 lodgepole pines to obtain information on ratio of emerging adult pine engraver beetle to mountain pine beetle populations.

RESULTS

Annual aerial detection surveys show that the infestation now extends over 12,500 acres of National Forest and State and private lands in the vicinity

of Four-Mile Flats (Fig. 1). Of the area now infested, approximately 4350 acres are in State and private ownership and the remaining 7000 acres on National Forest lands. Pine engraver beetle, I. pini Say., populations are extremely heavy within standing trees infested with mountain pine beetle. Some lodgepole pine examined contain only Ips broods.

Mountain pine beetle brood counts from standing infested trees, indicate a potential for additional losses of the same or greater magnitude in 1971 as occurred in 1970 (Table 1). Ratio of trees killed from 1969 to 1970 is greater than 1:1. A sufficient number of lodgepole and ponderosa pines are present to permit the outbreak to continue at this level for several years.

Pine engraver beetle populations emerging in 1970 exceeded mountain pine beetle populations by a ratio of 3.5:1. Ips populations appear to be heaviest in smaller diameter pine. Pine 10 inches d.b.h. and less will probably produce a minimum of mountain pine beetle brood because of competition from Ips.

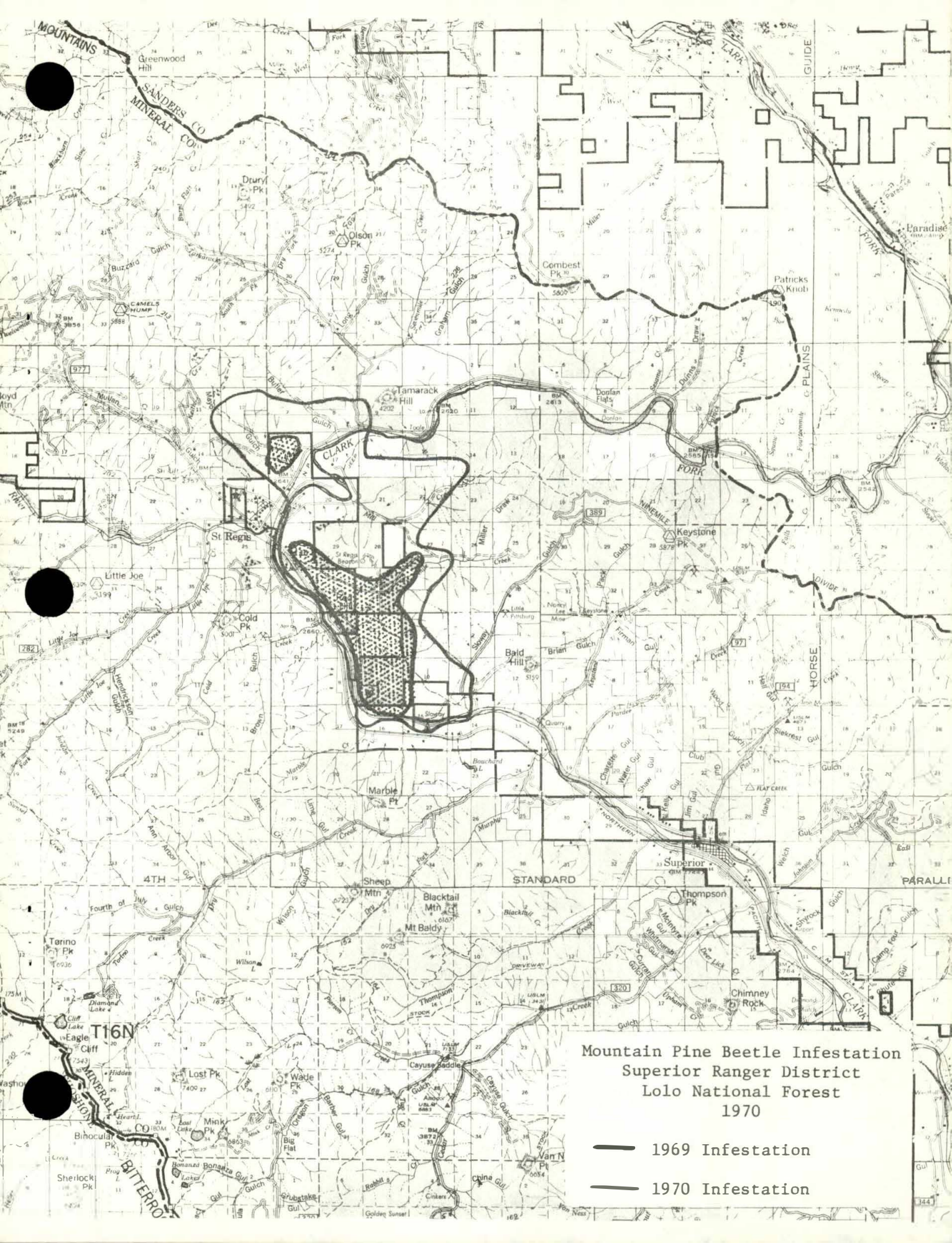
TABLE 1.--Summary of brood density and ratio of increase data for the mountain pine beetle infestation, Superior Ranger District, Lolo National Forest, November 1970.

Area	No. Trees Sampled	Average d.b.h.	Brood density/ sq. ft.	Attack density/ sq. ft.	Ratio of Increase (Parent adults to brood)
Four-Mile Flats	9	7.1	134.8	9.8	1:6.8

DISCUSSION AND RECOMMENDATIONS

The mountain pine beetle infestation is at an epidemic level in the St. Regis area. It is estimated that over 20,000 trees are currently infested. A more accurate count of new attacked trees could be obtained by an operational survey of infested area.

From an entomological standpoint, suppressive action is needed to reduce beetle populations and the potential for additional tree mortality, and infestation spread in 1971. Removal of infested trees by commercial sale should receive first priority for suppression. Where this method is not possible due to submerchantable size, felling and burning, or spraying standing trees with ethylene dibromide is recommended. Job priorities should be considered to insure completion of suppression projects before beetle flight by mid-June 1971. Close coordination between Forest Service, State of Montana, and private landowners should be maintained to ensure job completion.



Mountain Pine Beetle Infestation
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- 1969 Infestation
- - - 1970 Infestation

